# Indoor Rainbow Lab

**Kit contains:**

- 1 blank CD
- 3 paper circles

**You will need:** scissors, tape, a sunny window near a shaded wall, and a pencil.

**MORTON GROVE** PUBLIC LIBRARY
**6140 Lincoln Avenue, Morton Grove, IL 60053**
Youth Info Desk: 847-929-5102 | mgpl.org

# INSTRUCTIONS

**Step 1.** Bring your blank CD to a sunny window. Use the shiny side to reflect the light onto the wall.

- What do you observe?
- Did it cast a rainbow?
- How many?

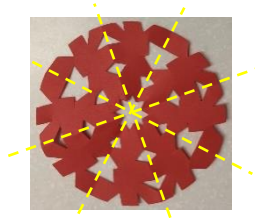
Now change the angle of the CD.

- What happens?
- Can you change the number of rainbows you cast?

**Step 2.** Use TWO of your paper circles to make different snowflake-style overlays for your CD.

Fold in half. Fold in half again. And again! (Observe the awesome math.)

Now snip bits and pieces out of your 8-layered circle sectors. Unfold to view your symmetrical creations.



*Marvel at the 4 lines of symmetry!*

**Step 3.** One at a time, tape your circle overlays to the shiny side of the CD. Then reflect the light onto the wall again.

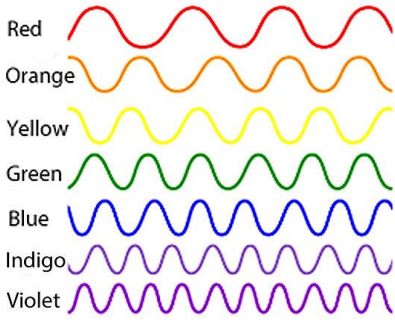
- What do you observe?
- What colors are the new patterns on the wall?
- Do you still cast rainbows?

**Step 4.** On your last circle, cut out a letter or shape that is NOT symmetrical. Tape it to your CD. Then reflect the light again.

- What do you observe?
- Can you make your original letter or shape appear on the wall? How?

# WHAT'S GOING ON?

Why does a CD reflect rainbow colors? A CD is a mirrored surface with spiral tracks or ridges. These tracks are evenly spaced and **diffract** the sunlight (separating the white light into all its colors).




You can think of light as being made up of waves. When light waves reflect off the ridges of the CD, they overlap and interfere with each other. Sometimes, the waves combine, making certain colors brighter. Sometimes, they cancel each other out, taking certain colors away.

*https://www.exploratorium.edu/science_explorer/reflecting_rainbows.html*

*https://buggyandbuddy.com/rainbow-science-create-light-patterns-with-a-cd/*